

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PRD2665- PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2007/054238	International filing date (day/month/year) 02/05/2007	(Earliest) Priority Date (day/month/year) 02/05/2006
Applicant JANSSEN PHARMACEUTICA N.V.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

- ☐ the text is approved as submitted by the applicant
☒ the text has been established by this Authority to read as follows:

BIOCIDAL COMBINATIONS COMPRISING IMAZALIL

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____
☐ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/054238

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01N43/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2000 103709 A (PERMACHEM ASIA LTD) 11 April 2000 (2000-04-11) abstract	1, 4, 5, 8-10, 12-17
X	WO 2006/021556 A (JANSSEN PHARMACEUTICA NV [BE]; BYLEMANS DANY LEOPOLD JOZEFIEEN [BE]; B0) 2 March 2006 (2006-03-02) paragraph [0001] - paragraph [0002] paragraph [0036] - paragraph [0038] claims 7, 11, 12 ----- -/--	1-3, 5, 7, 13, 16, 17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *8* document member of the same patent family

Date of the actual completion of the international search

2 August 2007

Date of mailing of the international search report

31/08/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx. 31 651 epo nt,
Fax: (+31-70) 340-3016

Authorized officer

Damiani, Federica

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2007/054238

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 563 731 A (BAYER CROPSCIENCE SA [FR]) 17 August 2005 (2005-08-17) paragraph [0001] - paragraph [0004] paragraph [0019] - paragraph [0022] paragraph [0038] paragraph [0043] claims 13,20,22 -----	1,2,5, 8-10, 13-17
X	WO 03/011030 A (BAYER CROPSCIENCE SA [FR]; GARNIER ALAIN JOSEPH JEAN FLOR [BE]; VERBRU) 13 February 2003 (2003-02-13) cited in the application page 10, line 19 - line 25 page 12, line 21 - page 14, line 7 -----	1,2,5, 13,16
A	DE 198 34 629 A1 (NOVARTIS AG [CH]) 3 December 1998 (1998-12-03) page 2 claim 1 -----	1,4,16
Y	DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; ELSMORE, RICHARD ET AL: "Bactericide combinations in detergents" XP002419019 retrieved from STN Database accession no. 2001:578597 abstract -----	1-17
Y	-& GB 2 354 771 A (ROBERT MCBRIDE LTD., UK) 4 April 2001 (2001-04-04) page 1, last paragraph page 2, paragraph 4 -----	1-17
Y	WO 92/19286 A (UNIV TECHNOLOGIES INT [CA]) 12 November 1992 (1992-11-12) page 26; claim 3 -----	1-17
Y	EP 0 741 971 A2 (TROY CHEMICAL CORP [US] TROY TECHNOLOGY CORP INC [US]) 13 November 1996 (1996-11-13) page 3, line 1 - line 24 -----	1-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2007/054238

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2000103709	A	11-04-2000	NONE	
WO 2006021556	A	02-03-2006	AU 2005276429 A1 CA 2575164 A1 NO 20071556 B	02-03-2006 02-03-2006 26-03-2007
EP 1563731	A	17-08-2005	CN 1917760 A	21-02-2007
WO 03011030	A	13-02-2003	AT 290786 T BR 0211787 A CA 2451865 A1 CN 1535112 A DE 60203299 D1 DE 60203299 T2 EP 1411766 A1 ES 2236560 T3 FR 2828065 A1 HK 1067494 A1 HU 0401252 A2 MA 26140 A1 MX PA04000874 A NZ 530348 A PL 365478 A1 PT 1411766 T US 2004167144 A1 ZA 200400700 A	15-04-2005 03-08-2004 13-02-2003 06-10-2004 21-04-2005 19-01-2006 28-04-2004 16-07-2005 07-02-2003 06-10-2006 28-09-2004 01-04-2004 03-06-2004 28-10-2005 10-01-2005 30-06-2005 26-08-2004 15-10-2004
DE 19834629	A1	03-12-1998	NONE	
GB 2354771	A	04-04-2001	NONE	
WO 9219286	A	12-11-1992	AU 1672492 A CA 2109084 A1 US 5312813 A	21-12-1992 04-11-1992 17-05-1994
EP 0741971	A2	13-11-1996	AR 001875 A1 AT 197370 T AU 706623 B2 AU 5211796 A BR 9602190 A CA 2175936 A1 CN 1144600 A CZ 9601308 A3 DE 69610871 D1 DE 69610871 T2 DE 741971 T1 DK 741971 T3 EG 22151 A ES 2153538 T3 GR 3035312 T3 HU 9601212 A2 JP 3488015 B2 JP 9002909 A NO 961839 A NZ 286517 A PL 314123 A1 PT 741971 T RO 114935 B	10-12-1997 11-11-2000 17-06-1999 21-11-1996 07-04-1998 09-11-1996 12-03-1997 13-11-1996 14-12-2000 07-06-2001 04-05-2000 29-01-2001 30-09-2002 01-03-2001 30-04-2001 28-04-1997 19-01-2004 07-01-1997 11-11-1996 26-05-1997 12-11-1996 30-04-2001 30-09-1999

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2007/054238

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0741971	A2	RU 2158084 C2	27-10-2000
		SG 54333 A1	16-11-1998
		SK 57296 A3	04-12-1996
		TR 960987 A2	21-11-1996
		US 5707929 A	13-01-1998
		US 5948730 A	07-09-1999

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2007/054238

International filing date (day/month/year)
02.05.2007

Priority date (day/month/year)
02.05.2006

International Patent Classification (IPC) or both national classification and IPC
INV. A01N4350

Applicant
JANSSEN PHARMACEUTICA N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Damiani, Federica

Telephone No. +49 89 2399-2664



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2007/054238

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2007/054238

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>4,6,11,17</u>
	No: Claims	<u>1-3,5,7-10,12-16</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-17</u>
Industrial applicability (IA)	Yes: Claims	<u>1-17</u>
	No: Claims	

2. Citations and explanations

see separate sheet

1. The application relates to a synergistic biocidal combination of imazalil and one component selected from tolylfluanid, dichiofluanid, OIT, DCOIT, terbutryn, chlorothalonil, hexamin and 1,2-benzisothiazolone.

Re Item V.

2. Reference is made to the following documents:
Unless otherwise indicated, reference is made to the passages indicated in the search report.
D1: JP 2000 103709 A (PERMACHEM ASIA LTD) 11 April 2000 (2000-04-11)
D2: WO 2006/021556 A (JANSSEN PHARMACEUTICA NV [BE]; BYLEMANS DANY LEOPOLD JOZEFIEEN [BE]; BO) 2 March 2006 (2006-03-02)
D3: EP-A-1 563 731 (BAYER CROPSCIENCE SA [FR]) 17 August 2005 (2005-08-17)
D4: WO 03/011030 A (BAYER CROPSCIENCE SA [FR]; GARNIER ALAIN JOSEPH JEAN FLOR [BE]; VERBRU) 13 February 2003 (2003-02-13) cited in the application
D5: DE 198 34 629 A1 (NOVARTIS AG [CH]) 3 December 1998 (1998-12-03)
D6: DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; ELSMORE, RICHARD ET AL: "Bactericide combinations in detergents" XP002419019 retrieved from STN Database accession no. 2001:578597
D7: WO 92/19286 A (UNIV TECHNOLOGIES INT [CA]) 12 November 1992 (1992-11-12)
D8: EP-A2-0 741 971 (TROY CHEMICAL CORP [US] TROY TECHNOLOGY CORP INC [US]) 13 November 1996 (1996-11-13)

3. **NOVELTY**

Document D1 discloses the synergistic effect of a combination of imazalil and chlorothalonil as antifungal. The weight ratio of the two antifungal components is 90:10 to 60:40, therefore overlapping with the ranges indicated in present claims 8-10. Accordingly claims 1, 5, 8-10, 12, 14, 15 appear not to be new (Article 33(2) PCT).

Additionally, D1 discloses the same effect for a combination of imazalil and

N-tert-Butyl-N-cyclopropyl-6-methylsulfamyl-[1,3,5]triazine-2,4-diamine, which appears a bioisoster of terbutryn.

D2 discloses synergistic fungicidal compositions comprising imazalil and a biocidal compound selected from tolylfluanid, dichlofluanid, chlorothalonil, 1,2-benzisothiazole (BIT), DCOIT, and OIT. Accordingly, claims 1,2,3,5,7,13 appear not to be new (Article 33(2) PCT).

D4 discloses a fungicidal composition comprising imazalil and i.a. tolylfluanid or chlorothalonil for controlling fungi growth on plants. Consequently, claims 1,2,5,13,16 appear not to be new (Article 33(2) PCT).

Additionally, D3 and D5 disclose the compositions of present claim 1 as a result of a selection from two lists respectively as fungicides and as herbicides.

D6 discloses the compounds of present claim 1 as bactericides and suggests the use of combinations of these compounds as bactericides in detergent compositions.

4. INVENTIVE STEP

In as far as the claimed subject matter is new the following observations as to the requirement of inventive step apply:

D2 appears to be the closest prior art. The main difference with the present application is that D2 does not appear to disclose the combination imazalil-terbutryn and the combination imazalil-hexamine. Accordingly, the problem to be solved with respect to D2 can be regarded as providing alternative combinations comprising imazalil showing synergistic biocidal effect. D7 discloses the biocidal activity of hexamine in antimicrobial compositions and D8 disclose that terbutryn in combination with a fungicidal agent gives a surprising synergistic biocidal effect. Accordingly, from the teaching of D2, D7 and D8 the skilled man would be prompted to investigate the synergistic effect of terbutryn or hexamine in a combination with imazalil and therefore, the skilled man would arrive at the solution proposed in the application. Consequently, no inventive step can yet be acknowledged.

As the combinations of claim 1 appear to be obvious, no inventive step can be acknowledged also nor for claim 16 which disclose an established procedure for a method to produce such composition just involving the mixing of the two ingredients. The same applies also for a kit containing the two components for simultaneous or sequential use. Neither the process nor the kit appears to produce an unexpected effect.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2007/054238

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information	For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.
---------------------	---

Amending claims under Art. 19 PCT	Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.
-----------------------------------	---

Filing a demand for international preliminary examination	In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT).
---	---

If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).

Filing informal comments	After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.
--------------------------	--

End of the international phase	At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPER (international preliminary examination report).
--------------------------------	---

Relevant PCT Rules and more information	Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003
---	--

Bitte beachten Sie, dass angeführte Nichtpatentliteratur (wie z. B. wissenschaftliche oder technische Dokumente) je nach geltendem Recht dem Urheberrechtsschutz und/oder anderen Schutzarten für schriftliche Werke unterliegen könnte. Die Vervielfältigung urheberrechtlich geschützter Texte, ihre Verwendung in anderen elektronischen oder gedruckten Publikationen und ihre Weitergabe an Dritte ist ohne ausdrückliche Zustimmung des Rechtsinhabers nicht gestattet.

Veuillez noter que les ouvrages de la littérature non-brevets qui sont cités, par exemple les documents scientifiques ou techniques, etc., peuvent être protégés par des droits d'auteur et/ou toute autre protection des écrits prévue par les législations applicables. Les textes ainsi protégés ne peuvent être reproduits ni utilisés dans d'autres publications électroniques ou imprimées, ni rediffusés sans l'autorisation expresse du titulaire du droit d'auteur.

Please be aware that cited works of non-patent literature such as scientific or technical documents or the like may be subject to copyright protection and/or any other protection of written works as appropriate based on applicable laws. Copyrighted texts may not be copied or used in other electronic or printed publications or re-distributed without the express permission of the copyright holder.

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 2000103709
PUBLICATION DATE : 11-04-00


APPLICATION DATE : 28-09-98
APPLICATION NUMBER : 10290017

APPLICANT : PERMACHEM ASIA LTD;

INVENTOR : KOBAYASHI KEIICHI;

INT.CL. : A01N 43/50 A01N 37/34 A01N 43/40 A01N 43/78 A01N 47/18

TITLE : INDUSTRIAL MILDEWPROOFING AGENT

 ABSTRACT : PROBLEM TO BE SOLVED: To obtain an industrial mildewproofing agent capable of preventing an industrial raw material and the product from putrefying or being polluted due to microorganisms, esp. mold (or mildew), and preventing their degradation and quality deterioration.

SOLUTION: This industrial mildewproofing agent includes a mixture of (A) at least one kind selected from the group consisting of 2-(4-thiazolyl)- benzimidazole, 2-benzimidazolecarbamic acid, Zn-2-pyridinethiol-1-oxide, Na-2- pyridinethiol-1-oxide, tetrachloroisophthalonitrile and 2,3,5,6- tetrachloro-4-(methylsulfonyl)-pyridine and (B) 1-(β)-alloxy-2,4- dichlorophenethyl)-imidazole, as an active principle.

COPYRIGHT: (C)2000,JPO